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ABSTRACT

This publication presents information on the outcomes of high school. It begins with an overview, "Youth at the Crossroads: Facing High School and Beyond," which suggests there are fundamental educational gaps among African American and Latino high school students and White students. The main article, "Are Today's Graduates Ready?" (Kati Haycock and Sandra Huang), examines high school student achievement and graduation rates. High school completion rates have remained unchanged for three decades, with the United States ranking 17th worldwide. High school students are reading no better than their peers a decade ago. Their mathematics and science gains are attributable to improvements before grade 8. Gaps between minority and white students are widening. Racial and gender differences exist in college entry rates, and lack of adequate preparation contributes to very high college dropout rates. Jobs for high school dropouts and high school graduates without further education are shrinking. In the 21st century, students will need at least some postsecondary education. In order to succeed in postsecondary education, high school students must regularly engage in rigorous, challenging work. The summary article, "Actions for Communities and States," prescribes actions for rethinking high school education: (1) clarify goals (K-16) and plot linked reforms; (2) develop partnerships of two-year and four-year institutions; (3) include students in planning: (4) use data analysis to drive the plan; and (5) critically examine state and local policies. (Contains 31 data figures and 16 references.) (SM)

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ED 458 351

YOUTH AT THE CROSSROADS: FACING HIGH SCHOOL AND BEYOND

THINKING K-16
Vol. 5, Issue 1, Winter 2001

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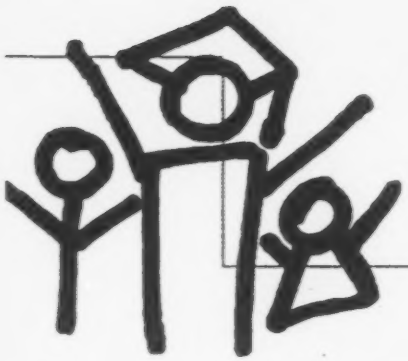

Thinking K-16

Vol. 5, Issue 1 A Publication of The Education Trust Winter 2001

Youth at the Crossroads

Facing High School and Beyond

Over the last several months, we've had a slew of requests, most notably from the National Commission on the High School Senior Year, for a summary of data we've been gathering on the outcomes of high school.

We are delighted to oblige. As most of our readers know, the Education Trust's *Achievement in America* and *Education Watch* series describing student outcomes kindergarten through college are in wide use, especially in communities and states trying to understand what's behind the achievement gap separating low-income and minority students from other young Americans. But we'd never before had the time—and the support—to drill down into the data on those all-important high school years and present it in an easy to digest format. We are grateful to both the National Commission and to the Pew Charitable Trusts for this opportunity.

Because high school sits at the junction between K-12 and higher education, these findings will have special significance for the readers of *Thinking K-16*. Many of you are devoting your full time attention to smoothing out the disjunctures between the two systems, and are working hard to knit the two systems together in a coordinated effort to improve achievement and close gaps between groups K-16. As more and more energy and dollars are finding their way to high school reform, we thought you might find it helpful to have a piece summarizing available data that could be distributed and used to jump-start local reform work.

For that reason, this *Thinking K-16* appears on our web site in a form that makes it easy to download, print and copy.

So What Did We Learn?

As you will see, there is plenty in here to be concerned about. Even the so-called good news conceals some troubling patterns. For example, an analysis of the data shows that the celebrated math gains of our 17 year olds aren't the result of anything that happens in the high school years, but carry over from a boost in the math performance before grade 8. In reading the picture is bleaker. Our elementary and middle schools are sending students to high school with higher reading skills, yet students graduate able to read no better than their peers did a decade ago. And despite growing enrollments in college prep and AP courses, the effects on learning have not been great.

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Indeed, while our international competitors have improved their high school completion rates, ours have remained the same for nearly 30 years. Once first, the U.S. now ranks 17th.

An Achievement Gulf—of Our Own Making

But for us the most galling—and most galvanizing—facts are these:

Near the end of high school, African American and Latino youngsters have skills about the same as White students near the end of junior high school.

During the 1990s, these gaps grew *wider* even as employment, income and other social gaps grew narrower.

Though some continue to argue otherwise, it is now overwhelmingly clear that these patterns are not the inevitable result of poverty, racism, or other social conditions. Rather, schools and school systems themselves are contributing mightily to that gap by taking the young people who have less to begin with, and then giving them less in school, too.

Moving Forward

Fortunately, however, there are around the country individual schools, districts, indeed whole states that are tackling these inequities head on and getting results. Achievement is going up and gaps between groups are closing.

To be sure, there are proportionately fewer success stories at the high school level than at the elementary or middle school level. That's hardly surprising, in our view, because most of the reform energy to date has focused on the lower grades.

But attention is now turning to the high school, and none too soon. For, as is clear in the following pages, it turns out that the widespread assumption that better prepared students would allow high school teachers, finally, to "do the job that they were hired to do," was wrong. During the 1990s, students *did* enter high school better prepared. But the value added during those high school years actually *declined*.

Let's get busy.

Kati Haycock
Director

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The Education Trust was created to promote high academic achievement for all students at all levels, kindergarten through college. While we know that all institutions could better serve their students, our work focuses on the schools and colleges most often left behind in efforts to improve education: those serving Latino, African American, Native American and low-income students.

The Education Trust works alongside policymakers, parents, education professionals, and community and business leaders, in districts across the country, who are trying to transform their schools and colleges into institutions that genuinely serve all students.

Thinking K-16 is published with the intent to share lessons learned in these communities with policymakers as well as with educators and members of the public concerned with the quality of education provided our neediest young people.

Thinking K-16 is supported by a grant from the Pew Charitable Trusts.

Are Today's High School Graduates Ready?

BY KATI HAYCOCK
AND SANDRA HUANG

IT'S BEEN 17 YEARS SINCE THE NATIONAL Commission on Excellence in Education called the nation to action on the quality of public education. And nearly 11 years have passed since the National Education Goals were first conceived. Where are we? Are today's students better educated when they leave high school than their predecessors back when all this got started?

This publication provides an overview of available data on this question. We'll look first at student achievement. Then we'll turn to high school completion rates over time.

In general, the data suggest an object at rest in a world that is rapidly rushing by.

- High school completion rates have remained the same for nearly 30 years.
- Indeed, after decades of leading the world in high school completion, the U.S. currently ranks 17th.

The situation is hardly more encouraging for what students know and can do.

- Despite some improvements in the reading skills students bring with them to high school, today's high school students are reading no better when they leave than did their peers a decade ago.
- Even in math and science, where recent gains among 17 year olds have been widely celebrated, it turns out that those gains are attributable to improvements below grade 8.
- While students are taking and completing more college preparatory courses, the effect on student learning has not been great, raising serious questions about the rigor of those courses.

Consequently, while our elementary age students perform relatively well on international tests in mathematics and science, we're scoring below most developed countries in both subjects by grade 12. And we do so not because our young people make no growth during their secondary years, but because their peers in other countries grow considerably more.

All these problems are worse for students from minority groups, as well as those from low-income families. Dropout rates are higher—and increasing; achievement levels are lower—and, in some cases, declining.

These patterns of underachievement have significant costs both to the students themselves and to the colleges and employers that receive them. Unaddressed, they also pose a serious threat to the economic and social health of our communities.

Where are we? Are today's students better educated when they leave high school than their predecessors back when all this got started?

Fortunately, through the good efforts of educators and community activists around the country, there are some shoulders on which we can stand to see a better future. We end this publication with a look at some core building blocks for rethinking high school education.

STUDENT ACHIEVEMENT

What Do We Know About Achievement Trends?

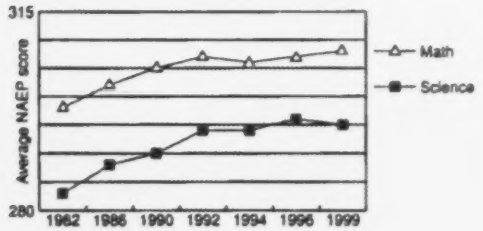
ON MOST INDICES, TODAY'S HIGH SCHOOL students are performing at about the same levels as did their counterparts during the early 1980s. A little higher on some tests, a little lower on others, but on the whole, achievement changed very little over the last two decades. The patterns are different for different subjects and different racial and ethnic groups, however. Here's a look at each.

By Subject...

- In mathematics and science, overall achievement is up. In both subjects, the average performance of 17 year-olds on the National Assessment of Educational Progress (NAEP) has gone up between 10 and 13 points since the early 1980s—about a full grade level (see Figure 1). The gains in mathematics are consistent with improved scores on the mathematics portion of the SAT over the same time period.
- In reading, achievement is down. The declines among 17-year-olds on the NAEP reading exam are slight, but troubling because these students actually entered high school with somewhat better reading skills than did their predecessors. Over the same period, scores on the verbal SAT have been flat.

Figure 1

High School Achievement: Math and Science



Source: U.S. Department of Education, NCES, NAEP 1999 Trends in Academic Progress.

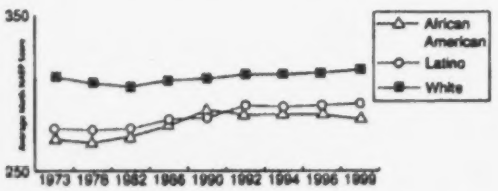
By Group...

We made real progress during the 1970s and early 1980s in raising achievement among minority students, substantially narrowing the gap separating them from other young Americans. In the 1990s, however, that gap grew wider again.

- In reading, achievement among African Americans and Latinos climbed substantially through the 1970s and 1980s, but gaps separating them from other students widened somewhat during the 1990s.
- The patterns in mathematics achievement look very similar, with the gap reaching its narrowest in 1990, then holding steady for Latinos, while widening for African Americans. In fact, the White-Black gaps are now approximately 10 points wider than at the beginning of the 1990s—about a full grade level (see Figure 2).

Figure 2

Gaps Narrow, Then Hold Steady or Widen: NAEP Math Scores, 17 Year-Olds



Source: US Department of Education, NCES, NAEP 1999 Trends in Academic Progress (p. 108) Washington, DC: US Department of Education, August 2000

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What Does Student Achievement Look Like Near the End of High School?

Trends aside, it is useful to know something about what students actually know and can do by age 17. Here's a look at what the NAEP long-term trend assessments tell us about knowledge and skills.

Too few 17 year-olds can read and understand the kinds of text that are common both in college and in our modern office economy.

- By age 17, only about 1 in 17 students can read and gain information from specialized text—something like the science section in your local newspaper. The numbers are much worse for students of color. Only 1 in 50 Latinos and 1 in 100 African American 17 year-olds can read at this level, compared to about 1 in 12 Whites.
- The ability to read and understand complicated—if somewhat less specialized—information is important to success in college and, increasingly, in the workplace. Yet only about half of all White 17 year-olds, less than one-quarter of Latinos, and less than one-fifth of African Americans can read at this level.

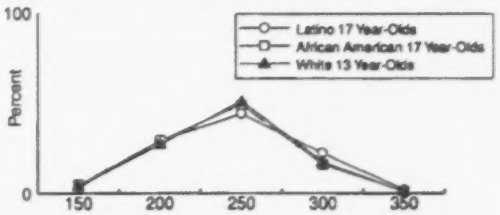
Though there have been gains in mathematics, surprisingly few 17 year-olds can demonstrate strong knowledge and skills.

- Only about 1 in 12 of all 17 year-olds can comfortably do multi-step problem-solving and elementary algebra—a finding that may surprise those who know that 91% of those students took at least one algebra course.
- Once again, there are big differences among the races, with 1 in 10 White students able to perform the above skills, compared to only 1 in 30 Latinos and 1 in 100 African Americans.
- At a far more basic level, 7 in 10 Whites have mastered the usage and computation of fractions, commonly used percents, and averages, compared to only 3 in 10 African American and 4 in 10 Latino 17 year-olds.

Near the end of high school, in fact, African American and Latino students have reading skills that are virtually the same as those of White students in 8th grade (see Figure 3). The pattern is the same in math.

Figure 3

African American and Latino 17 Year-Olds Read at Same Levels as White 13 Year-Olds



Source: U.S. Department of Education, NCES, NAEP 1999 Long Term Trends Summary Tables (online)

How Much of This Learning Occurred During the High School Years?

Given the expansion of pre-school education and the recent attention to elementary grades, is it reasonable to ask how much of the learning represented in these assessments actually occurred during the high school years? Here, the data give cause for concern.

- First, in reading and mathematics, students make more growth between grades 5 and 8 than they do during their high school years. Only in science is growth greater during the high school years.
- Second, in all three subjects, today's American 17 year-olds are making less growth during their high school years than did their earlier counterparts.

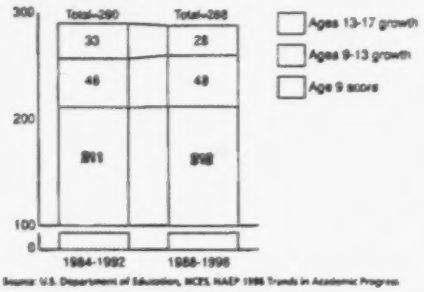
Thus, although achievement is up in math and science, virtually all of the gains in mathematics and science during the last decade can be attributed to increased learning prior to high school.

The reading data are even more troubling, because they challenge the common hope that many high school problems will right themselves if entering students are better prepared. In reading, youngsters during the mid-1990s actually

entered high school better prepared. But they left reading at slightly lower levels than their earlier counterparts (see Figure 4).

Figure 4

Academic Growth in Reading: Ages 9-13 and 13-17



Source: U.S. Department of Education, NCES, NAEP 1996 Trends in Academic Progress

Students in Other Countries Gain More in High School.

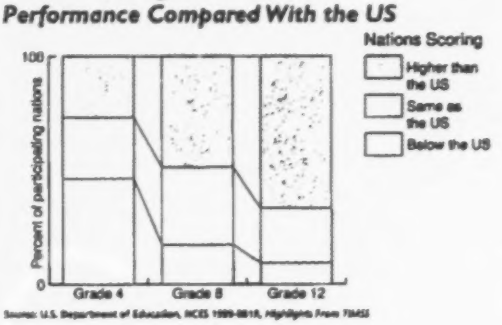
Many Americans aren't terribly surprised to learn that students aren't making much growth during their secondary school years. They've succumbed to a widespread view that adolescents, especially those in middle school, are incapable of sustained intellectual activity, at least in part because of "raging hormones." In other countries, though, adolescents are expected to make considerably more growth—and they do so with great regularity.

These differences are clear when we compare American students' performance in math and science at three benchmark grade levels to that of their counterparts in other developed and developing nations. American students do relatively well in both subjects at grade 4: near the top of the pack in science and in the upper middle tier in mathematics. By twelfth grade, however, their relative position has fallen precipitously.

- While only one country does better than we do in grade 4 science, by the 12th grade, we outperform only Cyprus and South Africa. Our 12th graders end up in the same position in mathematics (see Figure 5).

Figure 5

Nations' Average Mathematics Performance Compared With the US



Source: U.S. Department of Education, NCES 1999-0818, Highlights From TIMSS

- Even our top students—those enrolled in our most rigorous classes—perform poorly against their international counterparts.

Remember, our relative performance plummets not because our students make no growth in high school, but because their counterparts in other countries make considerably more growth.

HOW MANY STUDENTS MAKE IT THROUGH?

NOW THAT WE KNOW SOMETHING ABOUT what students are learning by the close of high school, it may be useful to inquire about how many actually make it to graduation day.

Unfortunately, this is perhaps the most elusive of all education indicators. Different states and communities use varying definitions of dropout.

Moreover, in many parts of the country, record-keeping systems are so bad that they simply cannot keep up with our increasingly mobile population.

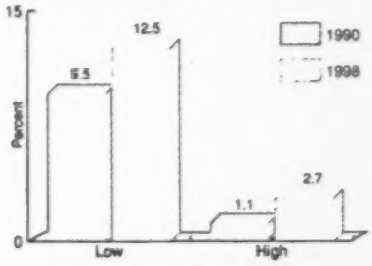
Here, however, is a look at what the different data sources say.

Annual Dropout. Each year, almost 1 of every 20 youngsters leaves high school. But there are vast differences among students from different racial and economic groups.

- During a typical year, we lose about 1 out of 30 Whites, 1 out of 20 African Americans, and 1 out of 10 Latinos.
- At the same time, students from poor families are considerably more likely to leave high school than students from affluent families (see Figure 6).

Figure 6

One Year Drop-out Rates by Family Income, Grades 10-12



Source: U.S. Department of Education, NCES, NCES "Drop-out Rates in U.S. 1998" (1999)

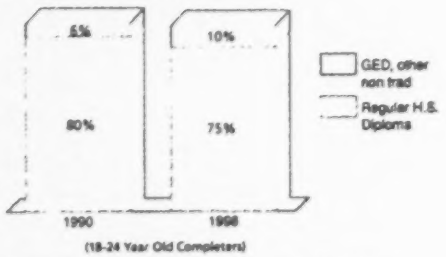
- The gap between groups widened during the 1990s.

Completion by Various Ages

- By age 18-19, data from the U.S. Census indicate that about 82% of all young people have completed high school. Of these, about 72.5% have earned a regular diploma, with another 9.8% earning a GED or other certificate.
- By age 22-24, 86.3% of all young people have completed high school, 10.4% through an equivalency program.
- During the 1990s, the proportion of completers with regular diplomas went down, while those with alternate certificates nearly doubled (see Figure 7).

Figure 7

Grad Rates Flat; More Non-Traditional Diplomas



Source: US Department of Commerce, Bureau of the Census, Current Population Survey (CPS) October 1998

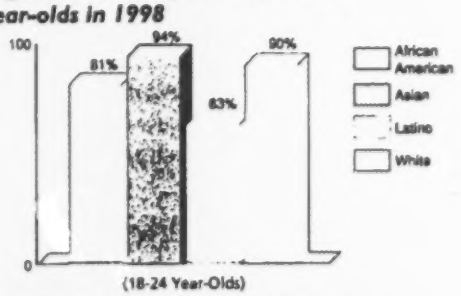
- After leading the world for decades in the proportion of young people earning a secondary diploma on time, the U.S. now ranks 17th.

Racial and Gender Differences

- In the 18-24 year old group, about 90% of Whites, and 94% of Asians have completed high school. Among African Americans, the rate drops to 81%, while among Latinos, it is only 63% (see Figure 8).

Figure 8

High School Completers for 18-24 year-olds in 1998



Source: US Census Bureau, Educational Attainment Detailed Tables, October CPS, 1998

- About 83% of males in this age group completed high school, compared with 87% of females.

Regardless of how completion is computed, the sad result is the same—at the end of the 1990s, American high schools had less success graduating students than they did as the decade began. Overall "completion" rates remained flat only because many students who left eventually obtained a GED or other similar certificate.

And After High School?

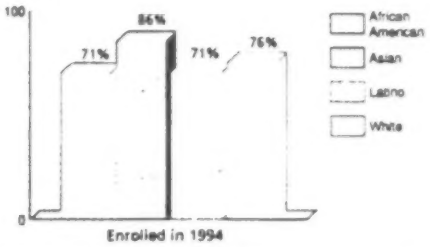
What happens to the graduates after they leave high school?

- About two-thirds of those who obtain high school diplomas enter into some form of postsecondary education the following fall. Within two years of high school graduation, that number rises to about three-quarters.
- Just as there are racial and gender differences in high school graduation, college entry rates also differ among the groups (see Figure 9).

Figure 9

Different Groups of Students Go On to Postsecondary at Different Rates

Class of '92



Source: Adelman, Clifford. Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment. US DOE, OERI, June, 1999.

- As many as half of all college students do not have adequate academic preparation, and are required to take remedial courses (see Figure 10).

Not surprisingly, students' lack of adequate preparation contributes to stunningly high college dropout rates:

- More than one quarter of the freshmen at 4-year colleges and nearly half of those at 2-year colleges do not even make it to their sophomore year (see Figure 11).

Figure 10

Remediation at 4 Year-Colleges

	Percent of All Students Taking
Any remedial reading	10.2
No remedial reading, but >2 other remedial courses	18.7
No remedial reading, but 1 or 2 other remedial courses	20.4
No remedial coursework	50.7

Source: Adelman, Clifford. Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment. US DOE, OERI, June, 1999.

Figure 11

College Freshmen Not Returning for Sophomore Year

4-year Colleges	26%
2-year Colleges	45%

Source: Tom Mortenson, Postsecondary Opportunity, No. 88, November 1999

- Even at relatively selective 4-year colleges and universities, only about half of college freshmen earn a bachelor's degree within six years—and the success rates vary for different groups, with fewer than 40% of African American and Latino undergraduates persisting to a degree, compared to two-thirds of Whites and Asians.
- And although more and more of the students who begin their postsecondary careers in 2-year colleges aspire to earn a bachelor's degree, their chances of earning that degree are low and declining. According to a recent study, above-average students who aspired to a bachelor's degree and whose parents attended college were 38% less likely to acquire a BA in five years if they begin their postsecondary

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work in 2-year colleges, compared to similar students who begin in 4-year colleges. (Schneider and Stevenson, 1999)

Cumulative Effects

The cumulative effects of these winnowing processes look very different for different groups of young people.

- Students from families in the top income quartile are about seven times as likely as students from families in the bottom quartile to earn a bachelor's degree by age 24.
- Young African Americans have about half the likelihood White students have to earn a bachelor's degree by age 29; young Latinos are only one-third as likely as Whites (see Figure 12).

Figure 12

Educational Attainment for Young People, Ages 25-29, in 1998

	African Americans	Asians	Latinos	Whites
Graduate from High School	88	90	63	88
Complete at Least Some College	50	74	33	59
Obtain at Least a Bachelor's Degree	16	51	10	28

(Age 25-29)

Source: US Bureau of Census, Current Population Reports, Educational Attainment in the United States: March 1998 (p. 20-513), Detailed Tables No. 2

THE COSTS

IN EARLIER TIMES, RESULTS LIKE THESE WERE reasonably tolerable. For those with strong backs and willing hands, there were decent jobs available that didn't require diplomas or advanced-level skills. Things are different today, and not just in the workplace. As citizens and parents, we face increasingly complex issues that require us to have higher level skills and knowledge.

There are still jobs available for high school dropouts, but these are shrinking as a portion of all jobs. Real wages and benefits have been declining since 1979 and are no longer sufficient to support a family. These jobs rarely provide opportunities for advancement, and are often held temporarily by young people while they are attending school or by new immigrants while they gain a foothold in their new country.

For high school graduates without postsecondary education, things are getting tougher, too. They also face a decline in real wages. In addition, the jobs they apply for often require them to show minimal competency as a condition for being hired. According to regular surveys conducted by the American Management Association, for example:

- More than 40% of employers test literacy and mathematics skills.
- Failure rates on these exams have climbed from 18.9% in 1996 to 35.5% in 1998—not, interestingly, because applicant skills are going down but because job requirements (especially in the manufacturing, wholesale and retail segments of the economy) are going up.
- The number of companies providing remedial programs declined from 24% in 1993 to 14.5% in 1999, which places more importance on the level of skill applicants bring with them.

Jobs for college-educated workers, on the other hand are growing—both as a share of all jobs and as a share of the 30 fastest-growing new jobs. Indeed, of these new jobs projected over the coming decade, about 70% will require at least some postsecondary education (see Figure 13).

Figure 13

New Jobs in the Workforce Require Greater Education and Skills

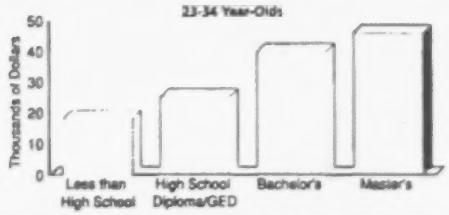
- **70% of the 30 fastest-growing jobs will require an education beyond high school.**
- **40% of all new jobs will require at least an associate's degree.**
- **Despite the surge in college going, college-level job openings between 1990-2008 will nearly equal college educated entrants to the workforce.**

Source: US Department of Labor, Bureau of Labor Statistics, The Outlook for College Graduates, 1996-2006, 2000, in Getting Ready Aye Off!, US DOE, October 2000, and BLS, Occupational Employment Projections to 2006, in NAB, Workforce Economics, vol.6, issue 1, Spring 2000.

Salaries, too, are the highest for young people with college, and, especially at the BA and post-baccalaureate levels, are increasing (see Figure 14).

Figure 14

College Pays Off:
Median Annual Earnings by Highest Educational Attainment, 1999



Source: US Department of Labor, Bureau of Labor Statistics, *The Outlook for College Graduates, 1998-2008*, 2000, in Getting Ready Pays Off! US DOE, October 2000

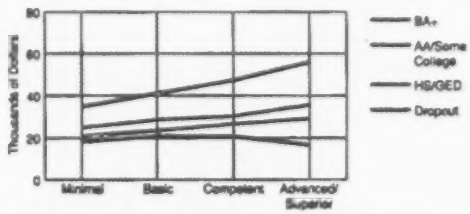
What Counts? Both Degrees and Skills

More education leads to higher wages. But actual knowledge and skills matter, too.

- Among males with only a high school diploma, for example, those with high-level literacy skills earn about 32% more than those with low-level skills.
- Differences are even bigger for college graduates, with highly-skilled graduates earning an average of $15,000 more per year than graduates with basic skills only (see Figure 15).

Figure 15

Skill Levels Count . . .
Even Apart From Education Credentials



Source: ETS analysis of National Adult Literacy Survey (1992). Data converted to 1998 dollars, missing graph segments are ones in which sample size too small to provide a reliable estimate

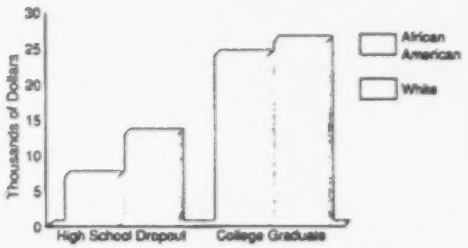
The Demographic Imperative

These trends are amplified for members of racial and ethnic minority groups.

- The acquisition of both credentials and skills has a greater impact on the earnings of minorities, than of Whites. With a college degree and equal test scores, earnings for African American males are only about 7% less than their White counterparts. Among high school dropouts with equal skills, on the other hand, earnings of African American males are almost half those of White males (see Figure 16).

Figure 16

Predicted Earnings by Race and Education



Source: Johnson, Williams, and Darek Nee, "Basic Skills and the Black-White Earnings Gap", in *The Black White Test Score Gap*, Jencks and Phillips, eds, 1998.

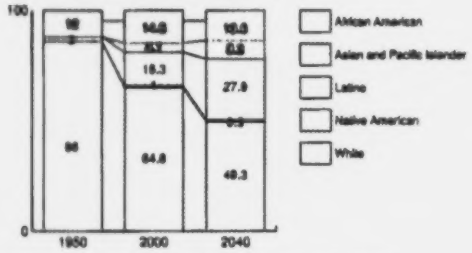
- Unfortunately, education levels and skills are not usually equal across groups. Disproportionately low attainment and skills have disadvantaged African American, Latino and Native American workers as job and salary growth have favored more highly educated workers.

Long a concern among minority leaders, these patterns are increasingly worrisome to others, especially employers. Forward-looking educators have known for some time that, given the increasing diversity of the student population, it is nearly impossible to improve overall achievement without improving the achievement of minorities. Likewise, employers now know that their future is also dependent upon the increasing success of minorities.

A quick look at the demographic profile of the U.S. school-age population tells the story. In 1950, Whites accounted for 86% of school-age youth. By 2000, their share had declined to 65%. In 2040, Whites for the first time will comprise less than 50% of the school-age population, with Latinos comprising a full 28%; African Americans, 14%; Asian Americans, 8%; and Native Americans, 1% (see Figure 17).

Figure 17

Shifting Composition of America's School Age Population (5-17)



Source: US Census Bureau, Population Projections, in Education Week, September 27, 2000.

RESULTS TO MATCH OUR NEEDS

CLEARLY, WE NEED TO IMPROVE EDUCATION in high school and beyond, especially—though certainly not exclusively—for members of minority groups. Of course it would help if there were changes outside of schools: if parents had more time to spend with their children, if poverty didn't crush so many spirits, and if the broader culture didn't bombard young people with so many ultimately destructive messages. But because both research and experience make it clear that what schools do matters a lot, we'll concentrate here on educational practices and policies that work.

The patterns in the data argue essentially two things:

- First, to have any kind of chance of gaining solid footing in the economy of the 21st Century, students will need at least some post-secondary education. We can no longer think of high school as a culminating experience for anyone.
- Second, to have any chance of success in post-secondary education—or, for that matter, in the world of work—high school students must regularly engage in rigorous, intellectually challenging work, and must make substantially more growth during their secondary school years than they do now.

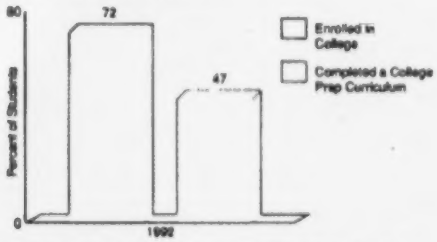
1. Goals Matter

Back in 1983, The National Commission on Excellence in Education worried aloud about a rapidly diversifying high school curriculum, describing it as "...cafeteria style...in which the appetizers and desserts can easily be mistaken for main courses." This trend toward the "shopping mall" high school actually began in the 1920s when the purpose of high school became confused. In response to increasing enrollments, especially new immigrants, high schools began to offer vocational courses for students not headed for college or managerial jobs. For these students, academic work was replaced by courses in "industrial arts," "bookkeeping," or "office practices." The general idea was that a few students needed to be educated to lead, with the remainder simply trained well enough to follow orders.

Since 1983, we have made progress. More and more high school students are completing the academic sequence recommended by the Commission, and fewer and fewer students are taking "general" or "vocational" courses. But this progress has not been nearly as fast as the increases in college going. Almost three-quarters of high school graduates go on to postsecondary schooling, while fewer than half have completed a full college preparatory program (see Figure 18).

Figure 18

Entered College vs. Completed College Prep Curriculum

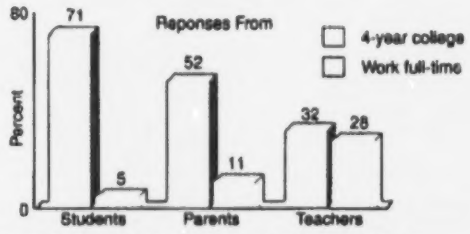


Source: NELS: 88, Second (1992) and Third (1994) Follow up; in, USDOE, NCES, Condition of Education 1997, Supplemental Table 9-1

These gaps are not surprising to people who spend a lot of time in schools talking with teachers or counselors. They see much the same thing as did the pollsters who talked to students, parents and teachers in a recent MET Life survey—students and parents had high expectations of going to college, while teachers expected considerably less (see Figure 19). Indeed, teachers and counselors often seem to think that college going rates haven't changed since they went to college.

Figure 19

When Asked Students' Main Plan After High School, Expectations Differed



Source: Metropolitan Life, Survey of the American Teacher 2000: Are We Preparing Students for the 21st Century?, September 2000.

Today's needs are different. Regardless of whether our new high school graduates aspire to careers requiring university degrees or technical certificates, the prerequisites are virtually the same—algebra, geometry, laboratory sciences and strong communication skills. But the absence of a coherent vision for high school sends mixed messages to teachers, counselors and students about what they should be working toward.

To cut through the old attitudes, we cannot equivocate. And we cannot simply do what *A Nation At Risk* did—merely exhort schools to "increase" the numbers of students in rigorous academic courses. Unless they have no choice, many adults will continue to channel some of the students in their charge—especially those who are poor or minority—into less demanding curricula. And the research bears out that the quality and intensity of high school curriculum is the single most important predictor of college completion.

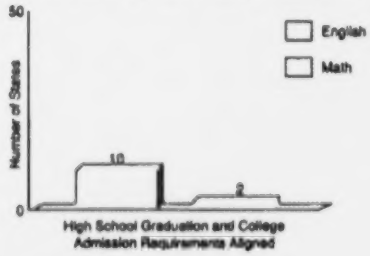
The purpose for high school, then, should be crystal clear: all graduates will be ready to pursue postsecondary education and training without remediation.

Both sides of the educational system, however, have been slow to respond to these new imperatives by taking on the work at the juncture of K-12 and higher education.

- While every state except one now has standards for all elementary and secondary students, the standards were typically established without the participation of higher education as a sector. The result in most states is a gulf between the K-12 goals and the skills needed to begin college-level work (see Figure 20).

Figure 20

Diplomas That Matter: The Need to Align Course Requirements



Source: National Association of System Heads, INASH3 Alignment Survey, 2000.

- The tests that most states administer to high school students are not aligned with the tests used for college admissions or for placement into college-level courses. In many cases, the high school tests address content that does not exceed the 9th or 10th grade level (Education Trust, 1999).

Higher education has important work to do, too. For starters, that work needs to include coming to cross-institutional agreement on the knowledge and skills necessary for students to begin credit-bearing work—and how to assess that. For too long, colleges and universities have avoided their responsibilities in this arena by claiming that their diverse missions make such agreement impossible. That intransigence has left high schools with far too many targets to prepare for.

Turning this situation around requires a clear educational goal. That, indeed, is precisely what the most successful schools seem to be doing: raising their sights, narrowing their purposes and focusing their energies.

2. Curriculum Matters

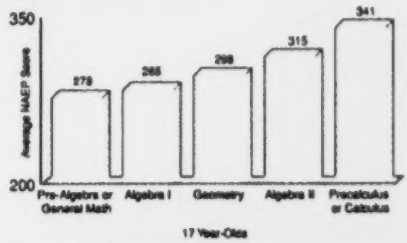
Goals for high-level learning won't do much good, however, without a curriculum to match.

For a long time, it has been evident that students who take more rigorous coursework in high school learn more and perform better on tests. Indeed, the more they take the better they do.

- In mathematics, for example, students who complete the full college preparatory sequence perform much higher on NAEP than those who complete only one or two courses (see Figure 21). The same pattern is true in NAEP science and on the SAT.

Figure 21

A Rigorous Math Curriculum Improves Achievement



Source: National Center for Education Statistics, NAEP 1999 Trends in Academic Progress (p 113). Washington, DC: US Department of Education, 2000

- Research also shows the positive impact of more rigorous coursework on work-bound students and students who enter as low-achievers (see Figure 22 and 23).

Figure 22

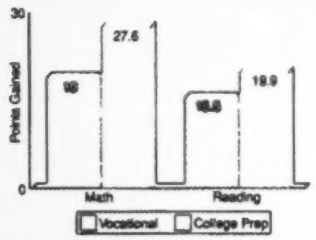
Vocational Students Taking High-Level English Courses Score Higher

	% Taking High-Level English	NAEP Reading Scores
1996	28	283
1998	43	292

Source: Bottoms, Gene. "Report of the SREB High Schools That Work 1998 Secondary School Teacher Survey."

Figure 23

Grade 8-12 Test Score Gains by Bottom Quartile Students by Curriculum Track



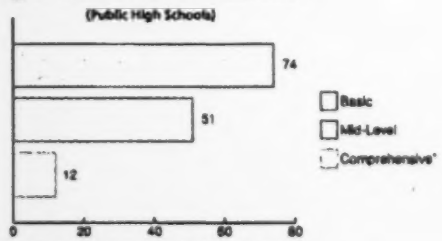
Source: US DOE, NCES, *Vocational Education in the United States: Toward the Year 2000*, In Issue Brief: Students Who Prepare for College and a Vocation

Yet while increasing numbers of students are following an "academic" track, progress is not fast enough.

- While almost three quarters of high school grads are going on to higher education, only about half of them complete even a mid-level college preparatory curriculum (4 English, 3 each in math, science and social studies). If you also include two years of Foreign Language and a semester of Computer Science, the numbers drop to about 12% (see Figure 24).

Figure 24

Percentage Students Completing Higher Level Curriculum, 1994



*Curriculum requirements recommended by "A Nation At Risk".

Source: Finn, Jeremy, "Opportunity Offered—Opportunity Taken: Course-Taking in American High Schools", ETS Policy Notes, Volume 8, Number 1, Spring 1999.

- The numbers are worse for African Americans, Latinos, and low-income students (Education Trust, 1999).

These patterns are disturbing, because the quality and intensity of high school coursework is the single-most important determinant of who succeeds in college—more important than class rank or scores on college admissions tests. And remember, curriculum rigor is important for work-bound students too.

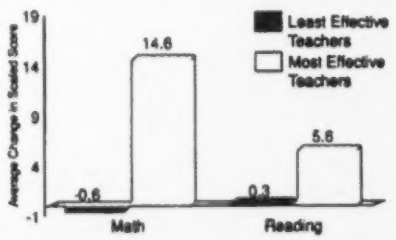
3. Teachers Matter

Especially during their secondary school years, students need teachers who know their subjects and how to teach them.

- Results from a recent Boston study of teacher effects are fairly typical. In just one academic year, the top third of teachers produced as much as six times the learning growth as the bottom third of teachers. In fact, 10th graders taught by the least effective teachers made nearly no gains in reading, and even lost ground in math (see Figure 25).

Figure 25

Boston Students with Effective Teachers Showed Greater Gains in Reading and Math



Source: Boston Public Schools, "High School Restructuring, Bain and Company, "March 5, 1998.

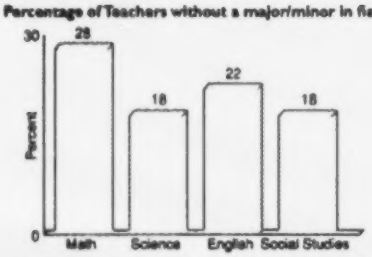
- Groundbreaking research in Tennessee and Texas revealed that these effects are cumulative and hold up regardless of the race, class or prior achievement of the students. (Haycock 1998)

Despite the importance of teaching to improving student achievement, large numbers of secondary teachers—between 18 and 28% in each of the four core academic areas—do not have even the equivalent of a college minor in their teaching field. The situation is worse in schools with concentrations of minority or low-income

students (see Figure 26).

Figure 26

Too Many High School Teachers Are Underqualified

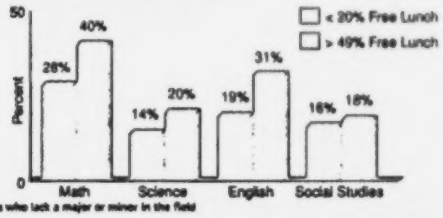


Source: Ingersoll, Richard. *American Educational Researcher*, "The Problem of Underqualified Teacher in American Secondary Schools", vol. 28, no. 2, March 1999, p. 29.

- In every subject area, students in high poverty schools are more likely than other students to be taught by teachers without even a minor in their fields (see Figure 27).

Figure 27

Classes in High Poverty High Schools More Often Taught by Underqualified* Teachers



*Teachers who lack a major or minor in the field

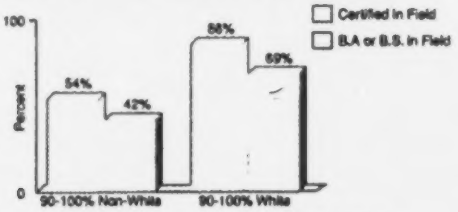
Source: National Commission on Teaching and America's Future, *What Matters Most: Teaching for America's Future* (p.16) 1996.

- The differences are often greater in predominantly minority high schools. In math and science, for example, only about half of the teachers in schools with 90% or greater minority enrollments even meet their states' minimum requirements to teach those subjects—far fewer than in predominantly White schools (see Figure 28).

The patterns are similar no matter which measure of teacher qualifications you use—experience, certification, academic preparation, performance on licensure tests: we take the students who are most dependent upon their teachers for subject matter learning and assign them teachers with the weakest academic foundations.

Figure 28

Math and Science Classes With a High Percentage of Minority Students Are More Often Taught by Underqualified Teachers

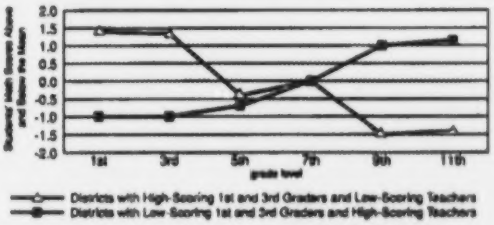


Source: Jeannie Oakes, *Multiplying Inequalities: The Effects of Race, Social Class, and Tracking on Opportunities to Learn Mathematics and Science* (Rand: 1990)

Some may wonder what might happen if this pattern were reversed. Research from Texas on what happens when initially underachieving children are taught by top tier teachers provide some clues. By the time those students reach the high school years, they are outperforming initially high achieving students who are taught by bottom tier teachers (see Figure 29).

Figure 29

Long-Range Effects Of Low-Scoring and High-Scoring Teachers On Student Achievement (Texas)



Source: Ronald F. Ferguson, "Evidence that Schools can Narrow the Black-White Test Score Gap," 1997.

4. Challenging Assignments and High Expectations Matter

Researchers in both the U.S. and overseas have amassed considerable evidence on the critical importance of high expectations in the form of challenging lessons and assignments. Fewer

than 3 in 10 teenagers, however, think their school is "very academically rigorous." Unfortunately, the data suggest that they are not wrong.

- In mathematics, more than 80% of 8th grade lessons in the U.S. are rated "low on content," while fewer than 30% of German lessons and fewer than 10% of Japanese lessons are similarly rated. (TIMSS, 1998)
- The pattern seems to be the same at higher grade levels. The science content taught in the U.S. at grade 11, for example, is typically taught in grade 9 elsewhere, while the mathematics content usually taught in grade 9 in the U.S. is typically taught in grade 7 elsewhere. (TIMSS, 1998)
- Almost one quarter of the nation's 17 year-olds read less than 5 pages per day both in school and for homework. Over the past 15 years, schools have increased reading assignments for both 9 and 13 year-olds, while practices for 17 year-olds have remained unchanged (see Figure 30).

Figure 30

Changes Over Time
Reading for Homework
1984 vs. 1999

	More Than 16 Pages/Day	Less Than 5 Pages/Day
9 Year Olds	⇧	⇩
13 Year Olds	⇧	⇩
17 Year Olds	⇔	⇔

Source: U.S. Department of Education, NCES, NAEP, 1999 Trends in Academic Progress

Furthermore, many students are getting grades that are not supported by corresponding performance.

- Students who take the SAT, for example, are reporting higher and higher GPAs over the last decade, yet scores have systematically declined across all GPA categories (see Figure 31).

Figure 31

Rising GPAs and Falling SAT Scores
1990-2000

GPA	More Students with Top Grades	Falling Average SAT Scores
A+	+3%	-15
A	+5%	-13
A-	+4%	-12
B	6%	-9
C	6%	-13

Source: The College Board, News Release "SAT Math Scores for 2000 Hit 30-Year High; Reflect Gains for American Education", August 28, 2000.

- The situation is worse in schools with concentrations of minority and poor students, who often receive As for work that would earn a C in another school. (Education Trust, 1998)

There are also troubling signs that teachers feel less responsibility than they should for student achievement. Nearly two-thirds agree that student success is "largely due to factors beyond me." (Metropolitan Life, 2000)

These patterns can and are being turned around in communities and states that are systematically expecting more from their high school students. In New York, for example, a decision to require all students to take and pass Regents Examinations has resulted not in the calamity that many predicted, but in systematic improvements in teaching and learning. Indeed, of the seniors newly required to take and pass the Regents English exam last year, 97% of students who completed all other graduation requirements met the Regents requirement. In the coming years, students will also have to pass

Regents exams in math, social studies and science.

In Texas, several high schools that replaced outmoded ways of teaching algebra are now not just getting their students through the course but to pass the state's end-of-course examination as well. Statewide, the pass rate for low-income students on the end of course exam is only 44%; but in these schools, the rate tops 67%.

5. School Size Matters

When students are taught in smaller, more personal environments, they tend to do better. Poor and minority students see even stronger benefits, with school size offsetting other disadvantages common to high poverty, high minority schools. While school size by itself is not enough to overcome all other problems or deficiencies, it is a good start to providing the kind of connected environment that will facilitate student learning.

- In several recent studies, small high schools were shown to weaken the "power" of poverty. Assessment results in Georgia showed that its smaller schools reduced the power of poverty by half across grade 11, and by two-thirds in grade 11 English alone.
- Going to a smaller scale brought promising early results to Baltimore's Patterson High School. Identified in 1994-95 as reconstitution eligible, Patterson worked intensively to implement a schools-within-a-school model. Prior to reform, 80-90% of the school's teachers said the school was not conducive to student achievement; only one year later, that number dropped to 20-30%. By the second year, Patterson's School Performance Index rose from second to the worst, to second best of Baltimore's nine comprehensive high schools. (Legters, 1999)

MOVING AHEAD K-16

OVER THE PAST SEVERAL YEARS, MANY thoughtful and creative people have put forward wonderfully compelling images of how high school in general—or the senior year in particular—might be reinvented.

Others, with pretty powerful logic, have argued that the very dollars that might fuel these reinvigorated institutions would be better invested in the early childhood years. "Take those 13 years of dollars and drop them down to two years," they say.

The real danger, though, is to conceptualize next steps in a narrow or linear way, for instance, higher education dictates what it wants and K-12 responds. For, in truth, most of the problems that characterize secondary education in this country—unclear and differential standards, uneven teaching, little curricular coherence—are found in higher education as well. Indeed, these two systems are intertwined in so many places that neither can solve its own problems without the other's cooperation.

No matter how we conceptualize the task at hand—improvement or reinvention, whole high school or senior year, one school or an entire district or state—tackling it well requires a cross-cutting, K-16 vehicle. Working together, a coherent K-16 system will make sure that our youth at the crossroads will be well-prepared for their journey, regardless of which route they choose.

Actions for Communities and States

As this issue of *Thinking K-16* goes to press, education and civic leaders are gathering in communities all across the country to begin the process of rethinking high school level education.

When creative people start sketching out their dreams for high school education, and especially when we have a chance to actually see those dreams being carried out in real schools here and there around the country, it's oh-so-tempting to simply sign on for the ride. Small, highly personal schools where no student can fall between the cracks? You bet! Rich, engaging, interdisciplinary curricula organized around distinctive themes? Sign us up!

We would remind our readers, however, that these kinds of passions are precisely what has fueled the many previous false starts in high school reform. This time, it's important that we are careful to build from the beginning on both the research and the lessons learned in earlier efforts.

As is clear in the previous section, this means that it is critically important to:

- ***Get up-front agreement on the central goal of high school education: what, in other words, should a high school diploma enable a student to do?***
- ***Eliminate curricular paths that do not equip students with the skills they need to obtain the postsecondary education they will inevitably need.***
- ***Assure that all teachers are masters of the subject matter they are teaching.***
- ***Require a high level of rigor in high school assignments.***
- ***Break large schools into smaller learning environments that are more personal for both students and teachers.***

Beyond defining what needs to change, there are also important lessons about structuring of the reform process.

1. **Don't tackle high schools in isolation: create a K-16 (or at least 7-16) structure to clarify goals and plot out a linked set of reforms.**

Efforts to focus on just one level of education will inevitably flounder unless they are nested within a broader structure. For one thing, one level of education cannot by itself grapple authoritatively with the issue of goals. To have real meaning for students, for example, diplomas must mean something to the institutions that students care about—colleges and future employers. Also, one level of education does not usually control all of the means to reach those goals—for example, better prepared teachers or students. For both of these reasons, then, a K-16 structure is critical to the long-term success of a high school revitalization effort.

2. **To be a genuine partner, higher education has to put its own house in order.**

In most states, there is no statewide definition of college-ready. Colleges admit whom they please. And then, after admission, they administer placement tests—usually in reading, writing and math—to distinguish between students who are ready for credit-bearing study and those who need "remedial" work. But each college uses a different test and/or a different cut score.

While it may well be appropriate for colleges with different missions to admit students on a range of criteria relevant to their individual institutions, we find it reasonable to ask that they agree at least on the core reading, writing and mathematics skills necessary to begin college-level work. After all, these skills mediate access to all subjects, regardless of institutional mission. Higher education faculty in at least three states—Florida, Massachusetts, and Georgia have already come to such agreements.

The refusal of higher educators elsewhere to come to similar agreements on a common definition of college ready leaves high school teachers without a clear goal to shoot for. For example, a recent SREB study found that local high schools in one region had as many as 75 different exams to game. Moreover, it leaves American high schools incredibly vulnerable. They can be beaten mercilessly in the press for an increase in the number of their graduates requiring "remediation" in college—not because preparation actually got worse (indeed, it may have gotten better), but because this graduating class attended a slightly different mix of institutions (with a different mix of tests) than the previous one.

If this reform effort, unlike the previous one, is not to die under the weight of multiple goals and multiple measurement systems, higher education needs to do its part by coming to agreement across two- and four-year institutions on what students need to know and be able to do to begin credit-bearing coursework.

3. Include Student Voices.

We've been surprised over the past few months by how many high school reform efforts have either no student involvement, or only token involvement. This is a serious mistake, especially for those who are concerned about rigor. In our experience, students—both current and graduates—are not just the most astute observers of the strengths and weaknesses of their schools, but also the most likely to agree that their work needs to be harder. They are also the first to question practices that no longer make sense, but have been around so long that the adults forget why they do them. To leave students out is a serious mistake.

4. Let Your Data Do the Driving.

We've walked you through the major lessons in the national data, but there is no substitute for a parallel exercise with your own data. Every community ought to begin by looking closely at what its own data have to say about student achievement in and beyond high school. Then, as your work proceeds, come back to the data regularly as you gauge your progress and plot mid-course corrections.

Remember, though, that not all data are numeric. There are other high school artifacts that can tell you a lot about what's really going on. By analyzing master schedules, for example, you can learn a lot about what—and who—individual schools value. By collecting and analyzing sample assignments within and across schools, you will also learn about the range of expectations for different students. Information on teacher assignments will also tell you a lot about who is teaching whom.

5. All action is NOT local. States must examine their role.

As local schools and communities begin to tackle problems in high school level education, they will often run up against state policies that get in the way of improving practice. Perhaps the most difficult fall under the general heading of time for both students and teachers.

Standards-based reform is, of course, an effort to change the metric in K-12 from seat-time to actual learning. Rather than continuing to hold time constant and let learning outcomes vary, the whole idea is to hold high level learning goals for all students, and let time vary as needed. This will inevitably mean that students who are behind should get extra instruction. But it can also mean that students who are moving faster should move into higher education more rapidly than the usual four-year high school program.

Unfortunately, many states that purport to be "standards-based" also adhere to rigid Carnegie unit requirements for high school graduation. They specify in endless detail exactly how many classes of what sort and how many instructional minutes in each students should get in order to earn a diploma. These requirements often preclude schools whose students enter furthest behind in their skills from doing what they know they should do—that is, drop almost everything else and triple up on instructional time in the core skill areas. Thus both schools and students get caught behind the old and the new rules. The same is true with time for teachers: while virtually everybody acknowledges that teachers need focused, intensive professional development during the school day to improve their effectiveness, rigid state rules can preclude schools from providing it.

State policies can also interfere with the goal of moving students along at a faster pace. The current obsession with AP courses is a good example. Many states—and indeed the federal government—are rewarding schools for adding more and more AP courses. Indeed the fastest growing part of the high school curriculum at the moment is AP—or college-level—courses. At the same time, the fastest growing part of the college curriculum is remedial—or high school-level courses. We wonder whether it makes sense for us to keep trying to do each other's work. Might some of those students in AP be better off in actual college courses taught by college professors? And wouldn't that free up some of our best-educated high school teachers to teach the students who MOST need their help?

Getting states and local districts to imagine new ways to structure high schools means giving up some old notions about what high school is. But one thing this *Thinking K-16* makes clear is that the old ideas are already obsolete. Our youth need to compete in a world that values knowledge and high-level skills as never before. We need a new approach to high school that will ensure that every young person is prepared to succeed in that world. It's time we got started.

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WHAT ABOUT STUDENTS WHO ENTER WAY BEHIND?

One of the most common questions we get from high school teachers these days goes something like this: "Students are entering my classroom with reading and writing skills at about the 4th or 5th grade level. How am I supposed to get them prepared for the state exam that they have to pass at the end of next year *in only 42 minutes a day?"*

The truthful answer, of course, is "you can't," at least not in that small amount of time. If students like these are going to succeed in meeting high standards, then they need ***extra*** instruction.

Up until recently, that didn't happen. Students who entered school behind their peers got the same amount of instruction as everyone—or, frankly, even less. In other words, we held time constant, and let the results vary. For low-achieving students, that meant creating a pathway through middle and high school that stayed well below the route taken by others.

Now, research tells us clearly that such students can achieve at much higher levels, but that they may need ***more instruction and support*** to get there.

Around the country, states and communities are acting on this knowledge in different ways.

- Kentucky provides extra funding to high poverty schools to lengthen instruction for the children who need it. At their option, schools may add before-school or after-school instruction, Saturday school, or summer sessions.
- Maryland, which is about to implement a new assessment system for high school graduation, has put together a comprehensive plan to provide assistance to students who need it. That plan emphasizes support for struggling 7th and 8th graders to give them a stronger foundation for high school work. This year, the Maryland Legislature appropriated 12 million new dollars toward this extra instruction.
- Massachusetts has also provided extra dollars to high schools to provide extra instructional supports for students who do not perform well on the new MCAS exam which will soon be required for graduation.

School districts have also been creative about how to provide that help.

- The San Diego school district leaders developed a blueprint outlining how they would provide extra instruction for students who were below grade level when they entered middle or high school. In general, that plan requires doubling—and in some cases even tripling—instructional time in literacy, mathematics or both, and teachers were provided with specialized training.
- The Lancaster, Pennsylvania, school district is responding to these same challenges with a new "Fast Track" pilot in one middle school that combines programs and resources in a very different way for students who enter well behind their peers. The goal is to simultaneously fill in basic literacy skills (using an Open Court-type approach), while simultaneously using Paideia and other approaches to foster higher-order skills.

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